American Energy Corporation

Century Mine

Slurry Spill Prevention Plan

December, 2006

American Energy Corporation

Slurry Spill Prevention and Countermeasure Plan

American Energy Corporation
Century mine
43521 Mayhugh Hill Road Twp. Hwy. 88
Beallsville, Ohio 43716
740-926-9152

24 Hr. Contact

Fred Blumling (Environmental Permit Coordinator)
43521 Mayhugh Hill Road Twp. Hwy. 88
Beallsville, Ohio 43716
740-926-9152

Permit Coordinator: Fred Blumling

Signature: Fred M. Blumling

Management Statement of Approval

I hereby certify that this plan will be implemented as necessary in the event of a spill from this facility. This certification commits any and all resources necessary to prevent a release form this facility from impacting water of the state of Ohio.

Signature: Ry M Murray

Title: General Manager

Date: 06/01/07

I. Owner / Operator Information

A. Parent Company Information

Murray Energy Corporation
43521 Mayhugh Hill Road Twp. Hwy. 88
Beallsville, OH 43716*
724-255-4691

*See Attachment 1

III. Emergency Notification List

Company Officials

Gary Trump (General Manager)	Cell: 740-310-9425
Dave Kocsis (Plant Superintendent)	Cell: 740-310-9057
Ron Vanhorn (Safety Director)	Home: 724-228-5067 Cell: 740-310-9056
Freddy Blumling (Environmental Engineer)	Cell: 724-255-4691
Ron Burdette (Chief Engineer)	Cell: 740-310-9025

State Agencies

Oho Department of Natural Resources	Office: 740-493-9079
ODNR Division of Wildlife	Office: 1-800-945-3543
Ohio State Patrol:	Office: 740-695-0915
Ohio EPA	Office: 1-800-282-9378
Fire Department	Office: 740-926-1342
Natural Response Center	Office: 1-800-424-8802

Cleanup Contractors

Bennoc Construction	Cell: 740-391-1331 740-391-1332
Reed Excavating	Cell: 740-310-1765 Home: 740-391-1765
Safety Kleen	Office: 440-992-8665
C & K Industrial Services	Office: 724-947-9401 800-555-4930

Note: The contractors listed above will be contacted immediately in the event of a slurry spill.

III. Description of Facility Operations:

The American Energy Corporation processes coal through a 1,200 TPH heavy media preparation plant. This plant only handles coal and its by-products after cleaning. These include coarse and fine coal refuse, consisting of clay material and rock. Coarse refuse is disposed of directly to the east of the AEC preparation plant. The fine refuse is pumped at 155 TPH (SG = 1.18) from the North West corner of the preparation plant to the Ohio Valley Coal Companies Refuse Impoundment (See Attachment 2 and 3). Total Line Capacity = 232,389 gallons.

Slurry Pumps

Slurry is pumped from the underflow of the thickener using two Warman 6/4F HH (High Head) centrifuge pumps. The table below describes both pumps that operate in series.

Table 1: Slurry Pump

Pump	Company	Size	Type	Flow Rate (GPM of slurry)	H.P.
1	Warman	6/4	HH	1,650	200
2	Warman	6/4	HH		200

Table 3: Return Pump OVCC

Pump	Company	Model	GPM	H.P.
1	Gorman Rupp	S3B1	960	100

Table 4: Fresh Water Pump

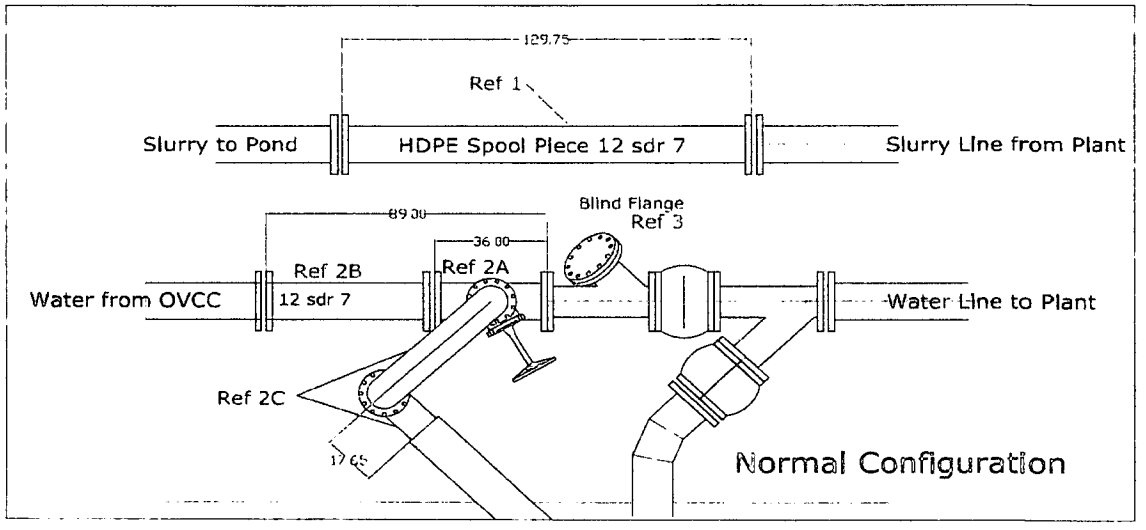
Pump	Company	Model	GPM	H.P.
1	Amer. Turbine	12M100/L0189962	497	150
1	Amer. Turbine	12M100/L0189963	497	150
Total			995	300

Maintenance Pit Locations

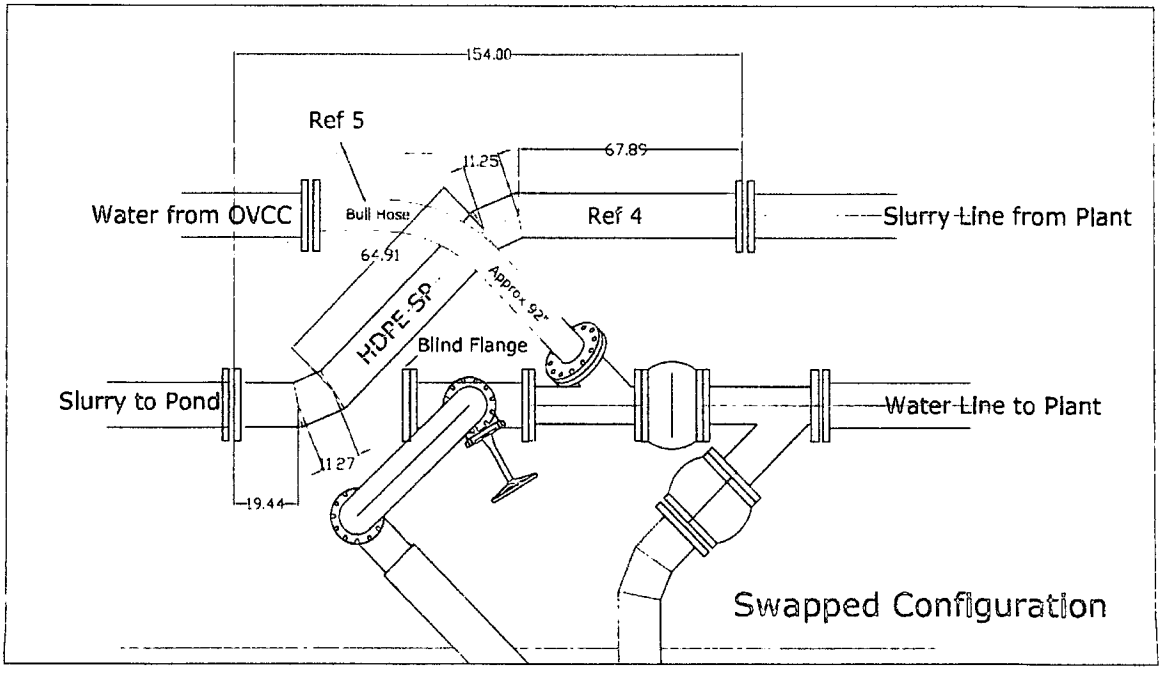
Location: South Side of Captina Creek
Description: Maintenance Pit: [22' X 16' X 6']
Volume: 2,112 _ ft^3

All pipe and crossover sections necessary to change from the "Normal Configuration" to the "Swapped Configuration" are located within the valve pit.

Normal Configuration



Swapped Configuration

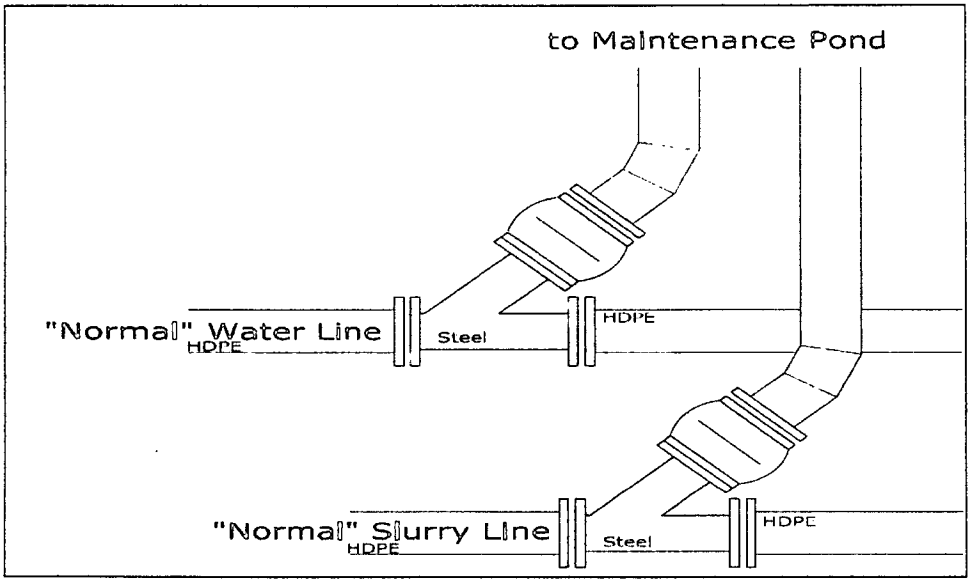


Maintenance Pit Description

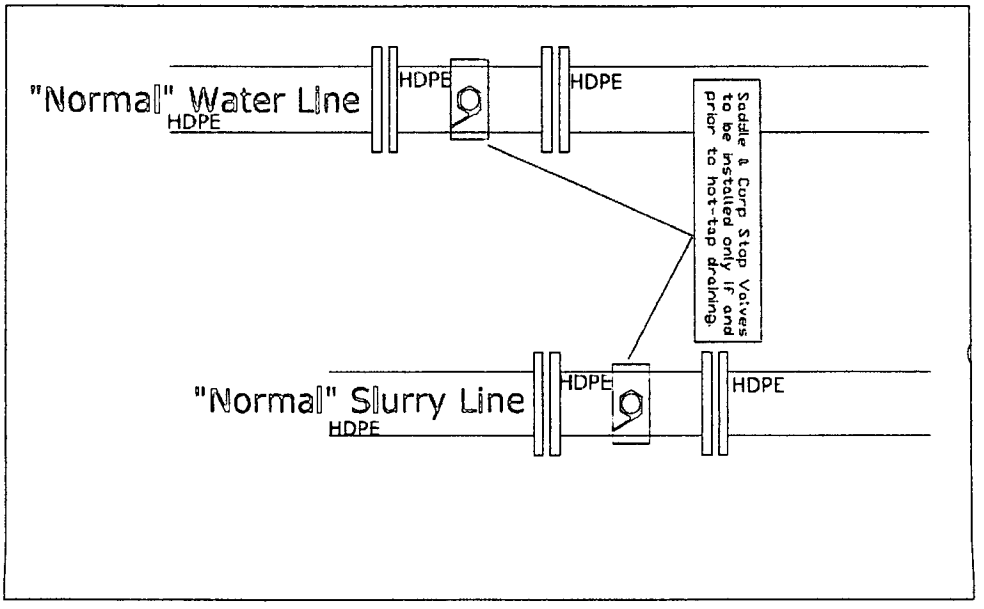
Location: North Side of Captina Creek
Description: Proposed Hot Tap Location

This is the proposed location of the Hot Tap System. After installing the Hot Tap system, all slurry will flow directly into the clay lined sump with a calculated 277,318 gallon capacity (See Attachment 8) located on the west side of the pipe line.

Old Configuration at Maintenance Drain Location (North Side Captina Creek)



Current Configuration



Flow Meter

Company: Sparling TigermagEP (see Attachment 4)
Model: FM656
Accuracy: +/- 1% (theoretical)

Two flow meters will be installed. One will be installed inside the plant, the other on an uphill run of pipe near the Ohio Valley valve pit. The outputs from each will be transmitted to the plant PLC and compared with one another. In theory they should be identical, but since each gauge is only accurate to within +/- 1%, a variance in readings of 2% must be considered acceptable. Anything more indicates a leak in the pipe that will be displayed as an alarm on the plant operators monitor. He may then shut the pumps down, or flush them with clear water and have the line visually inspected (see Attachment 5).

Draining Slurry Line Options

Hot Tap System

All "taps" or valves have been eliminated from the slurry line. The slurry line is now one continuous line from the charging end at AEC to the discharge end at OVCC (see Attachment 2). This minimized the chance of a slurry spill within the valve arrangement and decreased the probability of a slurry spill in these areas. However, The Hot Tap device (see Attachment 6) would be installed on the north side of Captina Creek. After installing the device, the slurry line would drain into the clay lined sump located directly to the west (3 ft.) of the pipeline.

- *Benefits:* Using a Hot Tap system would ensure that draining the slurry line into the sump would be controlled. The system has the potential to stop drainage if needed. Due to the drainage sump located just +/- 50ft. from Captina Creek, this would allow for the pipeline to drain directly into the sump, minimizing the potential contamination of Captina Creek.

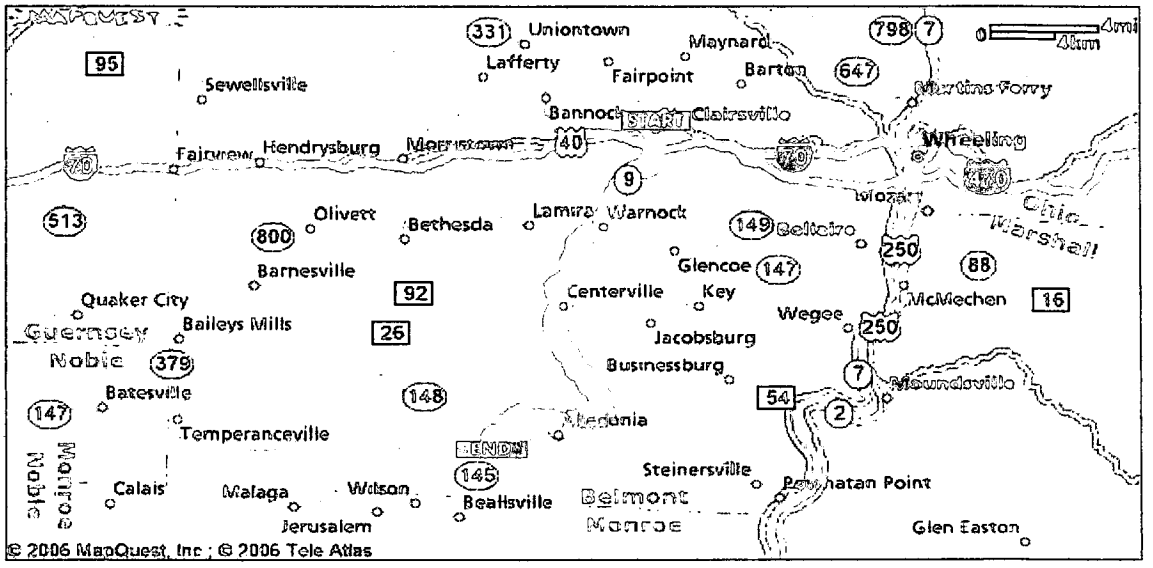
Slurry Inspection Schedule

The slurry is being inspected from AEC Preparation Plant to the south side of Captina Creek on a daily basis. The remaining slurry line; from the north side of Captina Creek to the discharge at OVCC is inspected on a weekly basis. The daily inspection is part of the pre-shift responsibility at the AEC Preparation Plant. Inspection's of the slurry line include but are not limited to the following (see Attachement 7)

- Visually look for any leaks, disturbances, excess water, within slurry line location.
- Visually check valve pit located south of Captina Creek
- Visually check discharge at OVCC Impoundment
- Implement Slurry Spill Response Plan in the event of a spill

Attachment 1: Facility Location

Directions From St. Clairsville, OH		Distance
	Total Est. Time: 40 minutes Total Est. Distance: 21.36 miles	
1:	Start out going SOUTH on N MARKET ST toward US-40 / E MAIN ST.	<0.1 miles
2:	Turn RIGHT onto US-40 / W MAIN ST.	0.1 miles
3:	Turn LEFT onto OH-9 / S MARIETTA ST. Continue to follow OH-9.	15.3 miles
4:	Turn RIGHT onto OH-148.	3.8 miles
5:	Turn LEFT onto OH-145.	1.8 miles
6:	Turn RIGHT onto MAYHUGH HILL RD / TOWNSHIP HWY 88.	0.1 miles
7:	End at 43521 Mayhugh Hill Rd Beallsville, OH 43716-9641, US	
	Total Est. Time: 40 minutesTotal Est. Distance: 21.36 miles	



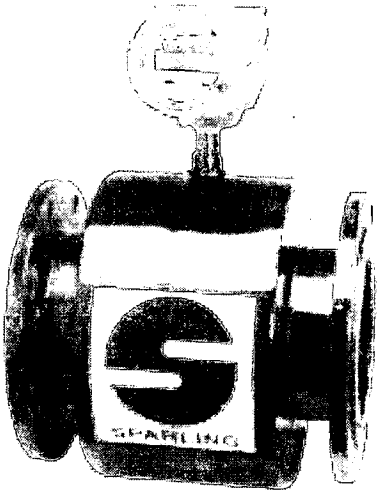
Attachment 2: Slurry Line Map

Attachment 4: Flow Meter Specifications

Product Data Sheet
PDS-656

TigermagEP
Technical Specifications

FM656 Obstructionless Electromagnetic Flowmeter



DESCRIPTION
The Model 656 is a microprocessor-based electromagnetic flowmeter designed to measure the flow of conductive liquids in full pipes. The sensor and the transmitter are integral and enclosed in a NEMA-7 explosion-proof housing. The sensor housing is made of steel.

A wide variety of liners and electrodes are available to allow you to tailor the meter to your process.

The Model 656's nonvolatile E²PROM memory and circuitry eliminates the need for a microprocessor backup battery. It is not necessary to reprogram if the electronic module is replaced or exchanged with electronics from another size flowmeter.

APPLICATIONS
The Model 656's high signal frequency makes it ideally suited to applications with high levels of inherent noise including: Process Chemicals, Heavy Sludges, Pulp & Paper Stock, Mining Slurries, Polymers, Acids, Alkalies, Sewage, Cooling Water. Nearly any conductive liquid can be measured.

CERTIFIED ACCURACY
Each **TigermagEP™** is wet-flow calibrated in Sparling's Primary Flow Lab traceable to the National Institute of Standards and Technology. A certificate of accuracy is furnished with each meter.

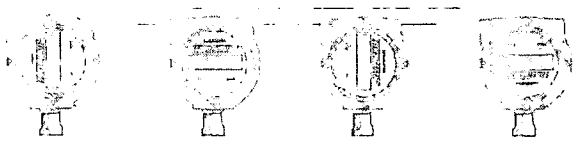
PRINCIPLE OF OPERATION
The Model 656 magnetic flowmeter is based on Faraday's Law which states that the voltage induced in a conductor moving through a magnetic field is proportional to the velocity of that conductor. The magnetic flowmeter will measure liquids with conductivities greater than 5 micromhos.

STANDARD FEATURES
- Sampling frequency up to 100 Hz for accurate measurement of fluids with high levels of inherent noise
- Forward, reverse and net totalization
- Programmable high and low flow alarms
- Nonvolatile E²PROM memory
- Universal electronics module compatibility
- 2-line, 16 character backlit display
- Programming made easy with Mag-Command™
- User-selectable damping & low flow cutoff
- NEMA-4X & NEMA-7 explosion proof enclosure
- Approvals include: FM, CSA (std.)
- Rotatable modular display
- Empty pipe detection
- PZR - Positive Zero Return
- Standard 0.5% accuracy
- Sizes available from 0.5" - 72"

FM APPROVED

SPARLING

AEC 02303



EASY TO READ BACKLIT ROTATABLE DISPLAY

The 16 character, 2-line backlit transmitter display is rotatable 360° in 90° increments ensuring easy reading in any orientation.

INSTALLATION

The meter must be mounted at a point in the line in which the pipe is always full of the process liquid under flowing conditions.

The meter may be equipped with ANSI 150 or 300 lb., AWWA, DIN, PN10 or 16, JIS 10K or 20K, or British Standard flanges.

Only three diameters of straight pipe length are required from the center of the meter to normal obstructions to obtain specified accuracies. In the smaller sizes all of the necessary straight pipe is contained within the meter itself.

E²PROM NONVOLATILE MEMORY

A backup battery is not required and there is no need to reprogram if the electronics module is replaced or exchanged. Meter identification (tube ID, serial number, K, offset, etc.) is stored on an E²PROM chip independent of transmitter electronics. The E²PROM chip has lifetime data retention.

EMPTY PIPE DETECTION - Standard

The Sparling TigermagEP™ is designed to detect absence or inadequate volume of process fluid in the pipe and will hold the output signal to 4 mA or zero. This feature does not require any hard wiring as it is a software selection. One of the most important values of this feature is that it prevents false totalization possible with other meters under partially filled pipe conditions.

EASE OF COMMUNICATIONS

The TigermagEP™ is programmable with Mag-Command or Hart Protocol. 4-20 mA, RS-232 or RS-485 outputs give you flexibility when interfacing with your distributed control system.

REMOTE MOUNTED TRANSMITTER

Remote mounting of the transmitter is required when pipe vibration is excessive, when flooding is possible or where high temperature conditions exist (over 212°F / 100°C).

The TigermagEP™ remote transmitter is housed in a NEMA-4X enclosure and features a larger sized (8mm) 16 digit 2-line backlit display. All power, coil and electrode connections are made within the transmitter enclosure and junction box. The meter is programmed using Mag-Command. Hall-effect switches which are energized from outside the enclosure. The enclosure can be wall mounted. An optional bracket for pipe mounting is available.

HI-Z CIRCUITRY

The Sparling TigermagEP™ provides superior performance in liquids which tend to deposit nonconductive coatings. Hi-Z™ circuitry produces a high input impedance to the transmitter's preamplifier (10^{12} ohms). The impedance of the coating is negligible as compared to the impedance of the receiving instrument. The voltage drop across the electrode coating is also negligible eliminating the need for electrode cleaners.

TWO FLOW ALARMS

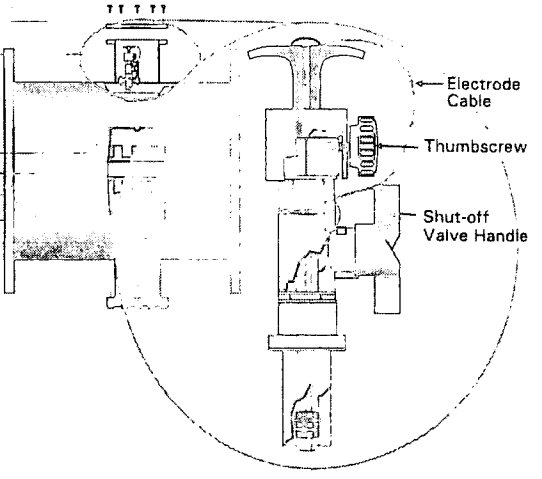
Fault alarms can be configured with alarm set points between 0-99% of flow for each alarm. Open collector output turns on above programmed set point.

PZR - Positive Zero Return

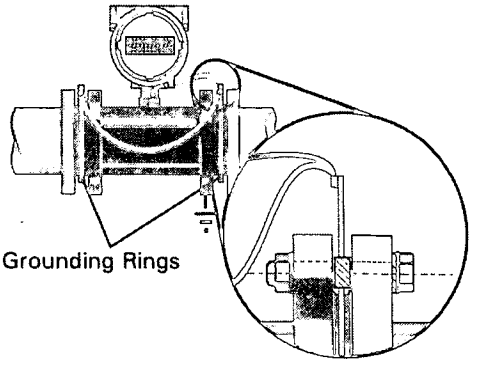
An electronic circuit is activated by an external contact closure when lines go empty or when a pump or valve is shut down, indicating to the meter that it should drive the output signal to 4 mA or zero.

REMOVABLE ELECTRODES *(option)*

Two configurations of removable electrodes are available in sizes 6" or greater for all FM656 meters. The first configuration allows removal of the electrode after the line has been depressurized and drained. Removal is performed with an 11/32" nut driver and a 3/4" socket wrench.



The second is the "hot-tap" electrode which allows electrode replacement while the system is still under pressure without disturbing the process flow. Removal can be easily performed with a phillips screwdriver and a crescent wrench. Special locking catches were designed to prevent high pressure accidents during electrode removal. The shut-off valve must be closed before the electrode may be removed.



GROUNDING

The use of grounding rings is recommended to ensure accuracy. Grounding rings are required if adjacent piping is lined or nonconductive. Pump noise or excessive RF should be minimized to achieve highest accuracy.

FLOW RATES & DIMENSIONS

Table 1 - Flow & Dimensions

Meter & mating flange size (inches)	Dimensions								Flowrates - GPM - Full Scale		
	A		B		C		D		1 fps.	3 fps.	33 fps.
	150lb.	300lb.	150lb.	300lb.	150lb.	300lb.	150lb.	300lb.			
0.5	4.00	4.00	3.50	3.75	9.50	9.62	9.25	9.37	0.6	1.7	18
1	4.00	4.00	4.25	4.88	10.19	10.50	9.94	10.25	2	6	66
1.5	4.00	4.00	5.00	5.12	10.88	11.44	10.63	11.19	5	15	174
2	4.00	4.00	6.00	6.50	11.69	11.89	11.44	11.64	9	27	303
3	6.00	6.00	7.50	8.25	13.00	13.40	12.75	13.15	20	60	664
4	6.00	6.00	9.00	10.00	14.38	14.88	14.13	14.63	35	107	1182
6	13.38	14.88	11.00	12.50	17.00	17.75	16.75	17.50	85	254	2800
8	13.38	15.40	13.50	14.25	19.40	19.78	19.15	19.53	145	436	4800
10	18.15	20.55	16.00	17.50	22.56	23.31	22.31	23.06	236	709	7800
12	19.40	21.78	19.00	20.50	25.00	25.75	24.75	25.50	333	1000	11000
14	21.38	23.75	21.00	23.00	26.67	27.67	26.42	27.42	409	1227	13500
16	23.38	25.88	23.50	25.50	28.97	29.97	28.72	29.72	545	1636	18000
18	27.25	29.88	25.00	28.00	31.14	32.64	30.89	32.39	667	2000	22000
20	27.63	30.40	27.50	30.50	33.39	34.89	33.14	34.64	879	2636	29000
24	32.75	35.75	32.00	36.00	37.44	39.44	37.19	39.19	1273	3818	42000
30	43.50	46.63	38.75	43.00	43.72	45.85	43.47	45.60	1909	5727	63000
36	47.75	50.85	46.00	50.00	50.20	52.20	49.95	51.95	2925	8775	96525
42	51.75	55.12	53.00	57.00	56.90	58.90	56.65	58.65	4040	12120	133320
48	51.75	55.38	59.50	65.00	63.05	65.80	62.80	65.55	5322	15966	175626
54	53.50	*	66.25	*	69.88	*	69.63	*	7144	21433	235800
60	65.50	*	73.00	*	76.75	*	76.50	*	8500	25500	280500
66	65.50	*	80.00	*	83.75	*	83.50	*	10300	31000	341000
72	72.75	*	86.50	*	90.00	*	89.75	*	12700	38100	419100

Dimensions for flanges. Allow 1/8" to 1/4" for lining thickness / Dimensions C & D ±.0125"

HOW TO ORDER A TIGERMAG EP MODEL 656

Base Model Number
FM-656 - TigermagEP

Size
OD = 0.50", OF = 1", OG = 1.5", 02 = 2", 03 = 3", 04 = 4", 06 = 6", 08 = 8", etc.

Table 3 - Liner Material

1	Hard Rubber (6" - 72")	3	Tefzel® (0.5" - 48")	6	Ceramic liner (0.5" - 2")
2	Soft Rubber (6" - 72")	5	Polyurethane (1" - 48")	9	Neoprene (6" - 72")

Table 4 - Electrode Material

1	316SS	4	Titanium	7	Platinum
2	Hastelloy C	5	Tantalum	8	Zirconium
3	316SS Bullet Nosed	6	Fused Platinum	9	Monel

Table 5 - Flange Rating

1	150 lb. flanges	4	PN 10 DIN	6	JIS 10K
3	300 lb. flanges	5	PN 16 DIN	7	JIS 20K

Table 6 - Transmitter and Mounting

0 Integral NEMA-4X/NEMA-7 enclosure
1 Remote NEMA-4X/NEMA-7 enclosure, 15' cable
3 Remote NEMA-4X/NEMA-7 enclosure, 15' cable, accidential submergence proof sensor
5 Remote NEMA-4X enclosure, 15' cable
6 Remote NEMA-4X encl., 15' cable, accidental submergence proof sensor
7 Remote NEMA-4X encl., 15' cable, permanent submergence proof sensor

Table 7 - Power Supply*

0 77-265 VAC Power 1 12-60 VDC Power

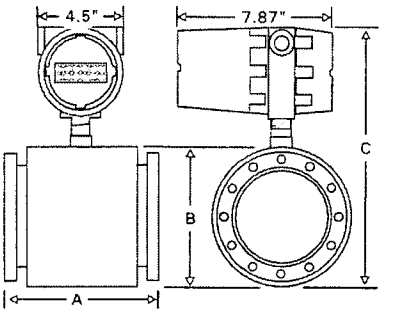
Special Notes for Construction

__ Hart® protocol (KP602 programmer available)
__ RS-485 Communications port
__ High temperature coils - required for temperatures over 266 F
Requires remote mount option from Table 6
Ceramic max temp 420 °F / *Tefzel*® max temp 300 °F @ 100 psi
__ Hot Tap removable electrode design (6" & above only)
__ Removable electrode design (6" - 72")
__ Special cable length (over 15 feet - Max. 100 ft.)
__ Alarm with relay contacts (remote only)

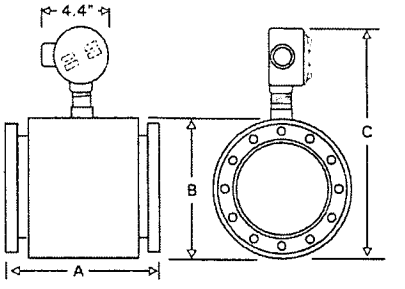
FM656 __ __ __ __ __ __

*FM approval is up to 120 volts

Integral Mount Transmitter

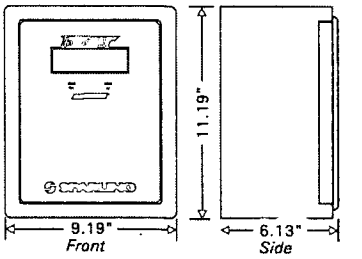


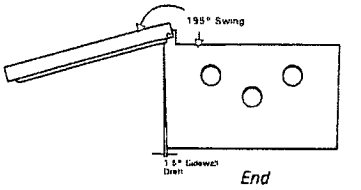
Remote Mount Transmitter

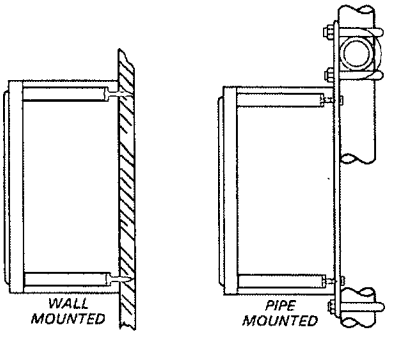


△ Sensor

▽ Transmitter Enclosure (NEMA-4X)







STANDARD SPECIFICATIONS

Accuracy: (Frequency Output)	**1.0"-72"** 0.5% of flow rate (1-33 fps) **0.5"** 1% of flow rate (1-33 fps)
Temperature Effect:	±0.025 % FS/°C
Full Scale Ranges:	From 0-3 to 0-33 ft/sec
Repeatability:	±0.1% full scale
Electrodes:	Stainless steel standard (others available)
Liner:	Ceramic (aluminum oxide 99.5%), Hard Rubber, Soft Rubber, Neoprene, Polyurethane or *Tefzel*®
Outputs:	1) isolated analog 4-20 mAdc into 600 ohms (std); 2) scaled pulse 24 Vdc with selectable 12.5/25/50/100 ms on time, max. freq. 60 Hz; 3) 0-1000 Hz freq., for 0-100% flow rate, 15 Vdc; 4) two flow alarms; 5) fault, with open collector; 6) RS232 communication, 7) flow direction with open collector; 8) Positive Zero Return (PZR) for external relay contacts. Outputs 2 & 3 can be open collector if required.
Mag-Command™:	Selection and change of meter parameters by magnetic probe without opening the enclosure
Display:	2-Line, 16 Digit alphanumeric backlit display (rate and total) Modular, rotatable 360° in 90° increments.
Conductivity:	Minimum 5 micromhos/cm
Minimum Velocity:	0.3 fps (0.1 mps)
Power Requirements:	*77 - 265 Vac 50/60 Hz (12-60 Vdc optional)
Power Consumption:	Less than 20 Watts
Enclosures:	Transmitter: Cast aluminum epoxy coated, integral (NEMA-7) or remote mounted (NEMA-4X). Sensor Housing: Fabricated steel, epoxy coated.
Electrical Rating:	FM – Class I, Div. 1, Groups B, C, D; Class II, Div. 1, Groups E, F, G (150 psi integral mount), CSA Approved for Class 1, Division 2
Preamp Impedance:	10^{12} ohms minimum.
Ambient Temp:	-20° to 140° F (-30° to 60° C) Display darkens over 158° F (70° C)
End Connections:	150 lb. or 300 lb.
Sensor Tube:	304 Stainless Steel
Process Temp:	**Integral Mount:** Hard rubber, Soft rubber, Neoprene, Polyurethane/Food Grade Polyurethane ..... -40 - 180°F *Tefzel*®, Ceramic ..... - 40 - 212°F **Remote Mount (opt)** *Tefzel*® (to 300 psi), Ceramic ..... - 40 - 266 °F **High Temp Coils (opt)** *Tefzel*® (to 100 psi) ..... - 40 - 300 °F Ceramic ..... - 40 - 420 °F
Selectable Damping:	0-99 sec
Low Flow Cutoff:	Selectable 0-9% of FS.
Options:	• Remote Mounted NEMA-4X Enclosure • Remote Two-Stage Batching Transmitter • Electrode Materials: Titanium, Hastelloy C, Monel, Zirconium, Tantalum, Platinum, Fused Platinum (ceramic only) • Process Temperature to 420 °F (216 °C) (ceramic only) • 12-60 Vdc operation • Digital Communications (HART Protocol) • Accidental/Permanent Submergence Proof Sensor (remote mount only) • Removable Electrodes (6"-72" only) • Hot-Tap Removable Electrodes (6" - 72" only) • RS-485 Communication • Alarm with relay contacts (remote mount only)

MODEL FM-656 SPECIFICATIONS

1.0 The magnetic flowmeter shall be microprocessor-based, and flanged. It shall indicate, totalize, and transmit flow in full pipes.

1.1 The magnetic flowmeter shall utilize DC bipolar pulsed coil excitation, operating at frequencies up to 100 Hz and automatically re-zeroing after every cycle.

1.2 The accuracy shall be at least 0.5% of flow rate over a 33:1 turndown at all flow rates above 1 fps. Accuracy shall be verified by calibration in a flow laboratory traceable to the U.S. National Institute of Standards and Technology.

1.3 The flow sensor liner shall be Ceramic, Hard Rubber, Soft Rubber, Neoprene, Polyurethane or *Tefzel*®. The housing shall be steel.

1.4 The integrally-mounted flow sensor and transmitter shall be FM approved for Class I, Division 1 & 2, Groups B, C, D and Class II, Division 1, Groups E, F, G environments without use of air purge. CSA Approved for Class 1, Division 2.

1.5 The electronics shall be integrally or remote mounted.

1.6 When remote mounted, the flowmeter transmitter shall be furnished in a NEMA-4X enclosure box, with a larger 3/8" character, 2-line 16 digit backlit display and 15 feet of cable (standard). Batch controller option available.

1.7 The flowmeter shall be suitable for operation at temperatures from -40°F to 266°F and at pressures from full vacuum to 740 psi. Temperatures to 420°F (optional).

1.8 The flowmeter electrodes on ceramic liners shall be fused platinum and shall not require O-rings.

1.9 The meter shall incorporate HI-Z circuitry. The preamplifier input impedance shall not be less than 10^{12} ohms. External ultrasonic electrode cleaners shall not be acceptable.

2.0 Available outputs shall be 1) isolated analog 4-20 mAdc into 800 ohms (standard); 2) scaled pulse 24 Vdc with selectable 12.5/25/50/100 ms on time, max. freq. 60 Hz.; 3) 0-1000 Hz freq., for 0-100% flow rate, 15 Vdc; 4) two flow alarms; 5) fault, with open collector; 6) RS232 communication; 7) flow direction with open collector. 8) Positive Zero Return (PZR) for external relay contacts. Outputs 2 & 3 can be open collector if required.

2.1 Low flow cutoff shall be selectable from 0-9% of FS and there shall be two flow alarms settable from 0-99% of span.

2.2 A 2-line, 16 character backlit alphanumeric display shall indicate user-defined flow units and total flow. All menu advice and commands shall be visible on this display. The display shall be modular and rotatable 360° in 90° increments. Characters shall be at least 0.125" high for ease of readability.

2.3 The flowmeter shall incorporate the MAG-COMMAND feature allowing menu selection and changes to be made from outside the housing via Hall-effect sensors. It shall not be necessary to remove covers, panels or fasteners to accomplish calibration or program changes.

2.4 The TigermagEP's unique diagnostic functions eliminate the need for a technican to carry test equipment or open the housing. Current ramp, complete coil check and true front-end input simulator may be activated in MAG-COMMAND without opening the enclosure.

2.5 The meter software shall incorporate a password feature preventing inadvertent program changes.

2.6 The meter shall feature nonvolatile E²PROM memory and universal electronics module compatibility between all TigermagEP meters.

2.7 The flowmeter shall have a switching power supply having an operating range from 77 - 265 Vac 50/60 Hz (12-60 Vdc). Power consumption shall not exceed 20 Watts.

2.8 All printed circuit boards shall be contained in a plug-in module and be interchangeable for any size without requiring test equipment.

2.9 The flowmeter manufacturer shall have meters of the DC pulse type in similar flowing mediums for a minimum of five years.

3.0 The flowmeter shall be warranted against defective workmanship or materials for a period of two years from date of shipment.

4.0 Totalized flow and programmed configuration shall be maintained in memory for the meters lifetime.

5.0 The flowmeter shall be MODEL 656 TigermagEP™ as manufactured by Sparling Instruments, Inc.

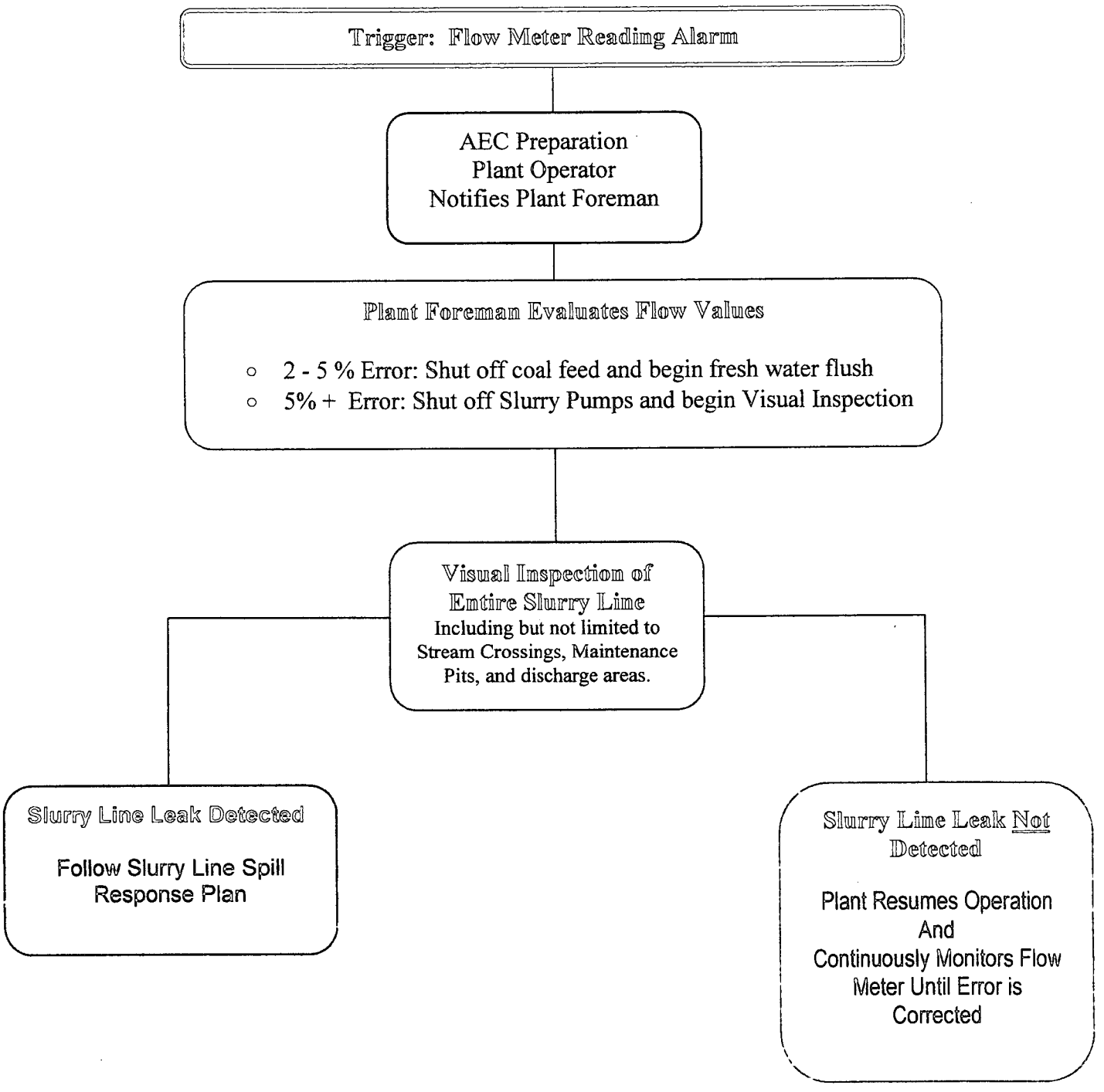
SPARLING INSTRUMENTS, INC.
4097 N. Temple City Blvd. • P.O. Box 5988 • El Monte, CA USA 91731
Ph (626) 444-0571 • Fx (626) 452-0723
Internet: http://www.sparlinginstruments.com • E-mail: sales@sparlinginstruments.com

04/02 Printed in U.S.A. (Dist. 05/04)

AEC 02306

Attachment 5: Flow Meter Reading Alert Response

American Energy Corporation
Flow Meter Reading Alert Response

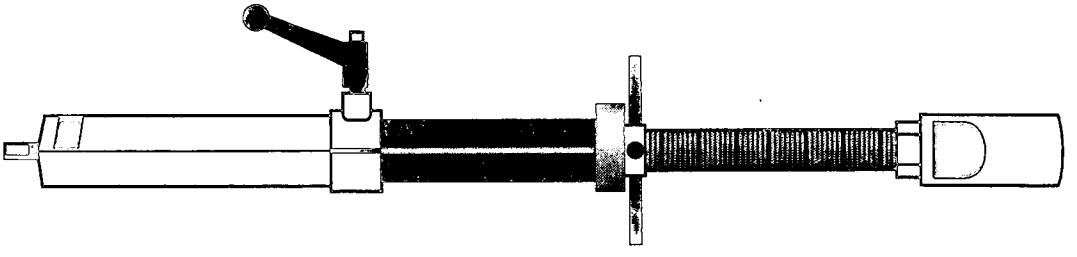


Attachment 6: TapMate (Hot Tap) Specifications

01/10/03

Transmate
21919 20th Avenue SE
Suite 100
Bothell, WA 98021
www.romacindustries.com

The TapMate™ Too
Pipe Drilling Machine



Please read all instructions before using this tool. Pay particular attention to the section on feeding the shell cutters into the pipe wall.

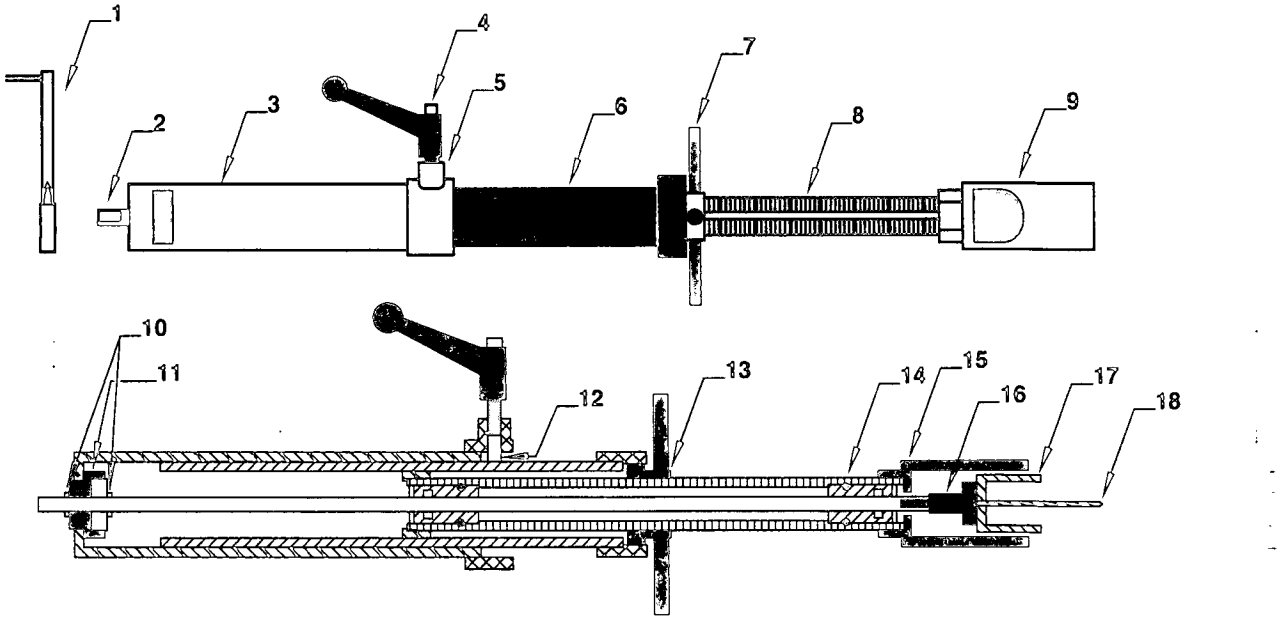
Table of Contents

General Description

The TapMate Too™ Drilling Machine features lightweight sturdy construction and a range of 3/4" - 2" cuts in both pressurized and unpressurized mains.

Ease of use and machine flexibility were two of the key design parameters of the TapMate Too™. The light weight of the machine (approx. 10 lbs.) aids in both set-up and break down at the job site. The TapMate Too™ uses both holesaws and spade drills to give it the flexibility to cut through cast iron, ductile iron, asbestos cement, steel, and plastic pipes at normal water-works operating pressures.

The TapMate Too™ is powered by hand with a manual feed into the pipe as standard. There is a direct reading scale in full view of the operator so he will know exactly how far the cutter has penetrated the main. As an option the TapMate Too™ can be powered electrically, hydraulically and with a hand drill.



REF NO.	DESCRIPTION	ITEM NO.
1	Ratchet Wrench	351-60-1
2	Shaft	351-20
3	Brake Tube	351-30
4	Brake Handle	351-29-2
5	Brake Body	—
6	Thrust Tube	351-32
7	Handle for Lead Nut	351-29-1
8	Lead Tube	351-23
9	Adapter (See Adapters next page)	—
10	Shaft End Snap Ring (2 required)	351-20-54
11	Shaft End Bushing Complete	351-22-1A
12	Brake Pin	351-50-2
13	Lead Nut	351-24
14	Lead Tube Bushing (2 required)	351-22-2
14A	Shaft Seal	351-57-2
14B	Lead Tube Bushing O-ring	351-57-1-62
14C	Bronze Bushing Complete	351-22-2A
15	Adapter O-Ring	351-05-571
16	Large Holesaw Arbor	351-14-2
17	Carbide Shell Cutter (see Holesaws on Page ???)	—
18	Arbor Pilot Drill	351-01-402
Not Illustrated		
	Small Holesaw Arbor	351-14-1
	Spade Bit Holder	351-03-12
	3/4" Spade Bit	351-03-106
	1" Spade Bit	351-03-108
	Shaft End Bushing Snap Ring	351-22-54
	Lead Tube Snap Ring	351-23-54

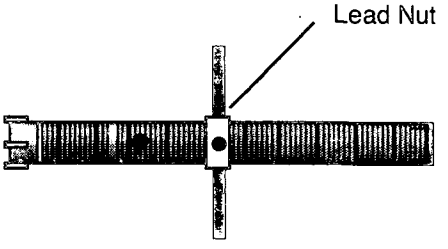
TapMate Too™ Components

SHAFT: The shaft is 5/8" case hardened 4140 steel. The drilling end of the shaft has a threaded hole that accommodates a variety of tool holders. You may attach holesaws using either the large or small holesaw arbors,
or use a spade bit with the spade bit
holder.

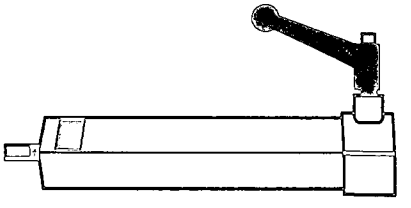
SPADE BIT: The spade bit provides a low cost alternative to the traditional twist drill bit. Spade bits are attached to the spade bit holder using the two Torx™ screws provided. Over tightening of these small screws will strip the heads. Spade bits are available in the 3/4" nominal (23/32" actual), and the 1" nominal (7/8" actual) sizes.

LEAD TUBE: The Lead Tube encapsulates the shaft between two shaft seals. It is threaded at 12 turns to the inch and provides a path of travel for the Lead Nut to advance the cutting tool into the main. The black color of the Lead Tube comes from a special process that provides surface hardness and corrosion resistance.

LEAD NUT: Made of 4140 steel, the Lead Nut translates rotational force from the handles into the cutter's travel into the main. Please do not use any type of cheater bar with the TapMate Too™. If feeding the cutting tool is difficult, the tool is probably dull and needs replacement.

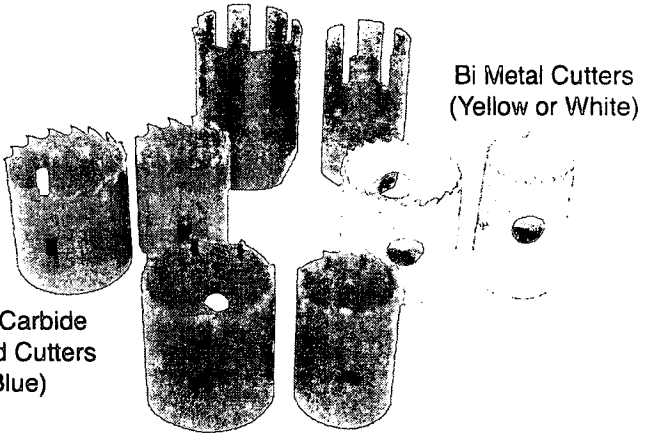


BRAKE TUBE: The Brake Tube is the square tube at the rear of the machine. It has a brake handle to lock it to the Thrust Tube. The Brake Tube with the Thrust Tube protects the Shaft and allows for quick travel into and out of the cut.

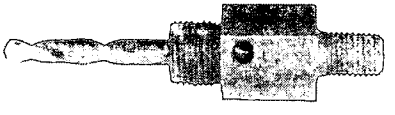


THRUST TUBE: The Thrust Tube is connected to the Lead Nut and helps to translate the rotation of the feed nut into linear motion. It also provides a surface to lock the brake. It includes special anti-corrosion and case hardening material.

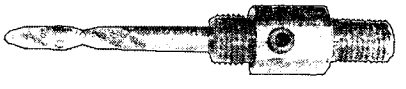
HOLESAWS: Four types of Holesaws are available. The carbide tipped holesaw is best for use on A/C, Cast Iron, or Ductile Iron pipe. The High Speed Steel holesaw is best for use with Steel Pipe, but may be used for ductile, cast iron and A/C as well. The PVC holesaw is necessary for cutting into plastic pipe. The HSS carbide tipped Holesaw works well on ductile iron, cast iron and A/C.



HOLESAW ARBORS: The arbors mate the end of the shaft to the holesaw being used. Two arbors are available. The Small Arbor accommodates 3/4" - 1 1/4" holesaws. The Large Arbor is necessary for 1 1/2" and 2" cuts.

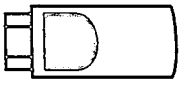


Large Arbor with Pilot Drill



Small Arbor with Pilot Drill

MACHINE ADAPTERS: Adapters are available for all 3/4" - 2" corp stops. Special adapters can be made at the factory. Contact Transmate for additional information at 1-800-426-9341.



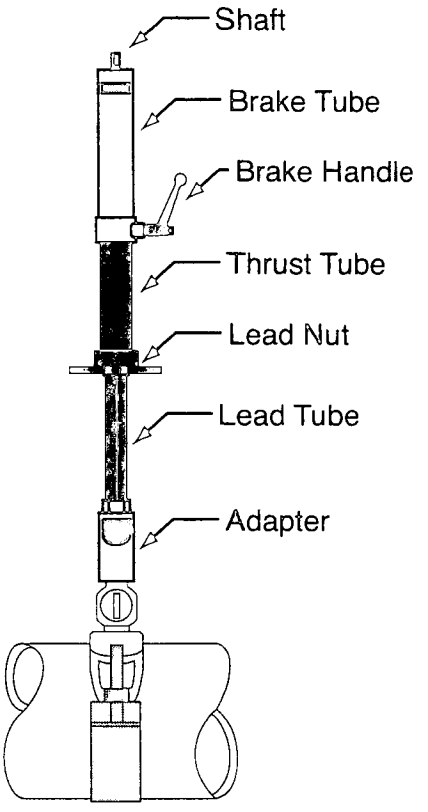
USING THE TAPMATE TOO

A. ASSEMBLING THE MACHINE:

1. Choose the proper size and type of Adapter. The Adapter must match the body outlet threads of the corporation stop you intend to use. Thread the hex end of the adapter onto the Lead Tube until it stops. This assures the O-Ring will seal against water pressure.

2. Attach the proper cutting tool, either the spade bit holder and spade bit, or the appropriate arbor and holesaw. Drilling PVC pipe demands the use of the PVC Holesaws.

If you have chosen to use Holesaws, check that the pilot drill is locked into place. There is a set screw on the side of the arbor that bears onto a ground flat on the pilot drill. If the pilot drill is not locked, it may just spin and not cut the pilot hole. It is recommended that you do not use a Pilot Drill on plastic pipe.



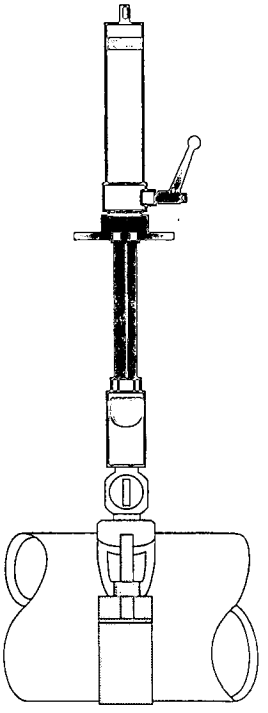
B. MOUNT MACHINE ON THE CORP STOP:

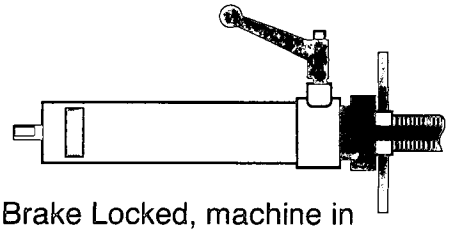
1. Retract the machine so the Thrust Tube is all the way back and the Lead Nut is retracted so the the number "0" shows on the milled ruler scale on the Lead Tube.

2. Thread the machine and adapter onto the corporation stop until it is tight. If the adapter is left loose you may leak water. Use a pipe wrench to tighten the machine and adapter onto the corporation stop.

3. Open the corporation stop. Loosen the brake handle and slowly collapse the two square tubes, advancing the cutting tool to the pipe wall. Avoid a sharp contact with the main, as this may damage the Pilot Drill, Spade Bit or Holesaws.

4. Lock the brake with the brake handle. Mount the ratchet wrench and begin cutting.





Brake Locked, machine in the Drilling position

C. DRILLING THE PIPE:

THE RATCHET MUST ALWAYS TURN CLOCKWISE WHEN LOOKING TOWARD THE MAIN. REVERSING THE DIRECTION WILL DAMAGE YOUR CUTTING TOOLS.

1 Using the Spade Bits:
The spade bit will act like a standard drill bit. Turn the ratchet handle in the back a full 360 degrees if possible. You should try to apply force so as to continually move the spade bit into the pipe.

2 Using the Holesaws and Arbors:
The holesaws will not act like a standard drill bit and the feeding rate must be changed. Over-feeding the holesaws will break the teeth off and make the cut hard work.

Holesaw manufacturers advise that more the 25 ft-lbs. of torque is enough to damage the teeth of holesaws. A holesaw SHOULD NOT BE FORCED INTO THE MAIN. It needs to cut a path as it goes, unlike a standard drill bit which chisels its way through the pipe wall.

We advise you to feed the holesaw so the the ratchet is always easy to turn. If the ratchet catches, reverse the feed until the holesaw is freely turning. Proceed back into the cut, then back off the feed and go a little slower. At first, the feed may seem very slow to the operator and he may be wondering how long it will take to make the cut. Please do not be impatient! You will find that a fast cut can be obtained with very little effort if you feed the holesaws as recommended.

If possible, turn the ratchet a full 360 degrees with the holesaws. Start out feeding very slowly and get used to the cutting action of a holesaw on the pipe. As a general rule, you will feed about 1/8th of a turn on the feed nut for every two revolutions of the shaft.

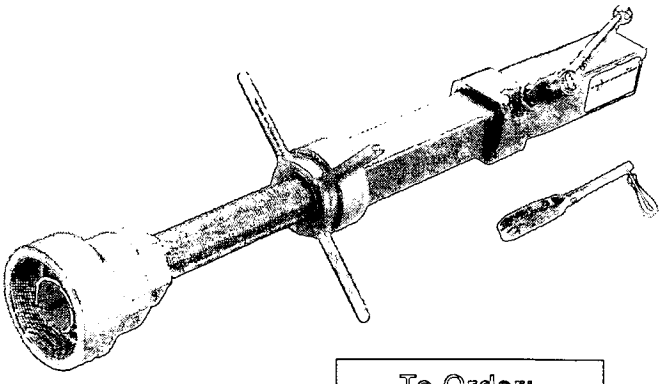
The key is to feed the holesaw so the ratchet is always free turning. Please try this method no matter how many cuts you've made in the past. You will find that cutting a hole into a water main is much less work! If there has been one common problem with the TapMate Too™ for new users, it has been overfeeding the holesaws.

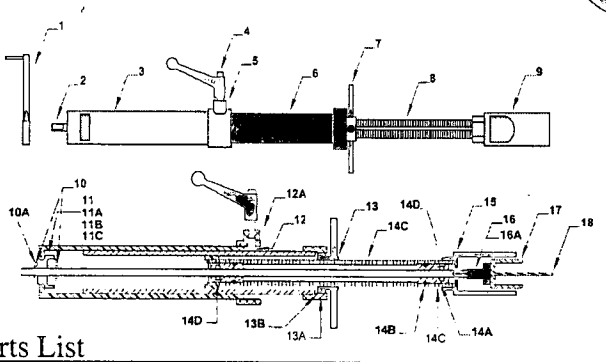
Transmate
a Division of Romac Industries, Inc.
1-800-426-9341
MADE IN U.S.A

TapMate Too™
3/4" to 2" Range of Cuts

Material Specifications

- Weighs 10 lbs., allowing easy handling and operation
- Safety brake provides controlled boring bar release on high pressure cuts
- Sturdy construction with more than 12" of boring bar travel
- Taps any pipe commonly used in underground water mains
- Simple construction allows in-house maintenance and repair





To Order:

1. Order Base Machine
2. Order Cutters or Spade Bits per desired pipe type and size
3. Order Adapters per size and corp outlet type
4. Order Arbors per size
5. Order Power Option if desired

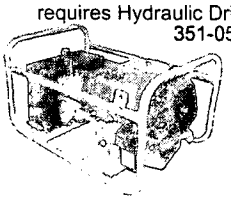
Parts List

REF NO.	DESCRIPTION	ITEM NO.
1	Ratchet Wrench	351-60-1
2	Shaft	351-20
3	Brake Tube (includes Brake Pads)	351-30
4	Brake Handle	351-29-2
5	Brake Body (part of Brake Tube)	—
6	Thrust Tube	351-32
7	Handle for Lead Nut	351-29-1
8	Lead Tube	351-23
9	Adapter (See Adapters page TM-13)	—
10	Shaft End Snap Ring (2 required)	351-20-54
10A	Shaft End Nylatron Washer	351-20-531
11	Shaft End Bushing Complete	351-22-1A
11A	Shaft End Bearing	351-20-56
11B	Shaft End Bushing	351-22-1
11C	Shaft End Bushing Snap Ring	351-22-54
12	Brake Pin	351-50-2
12A	Roll Pin	351-50-3
13	Lead Nut	351-24
13A	Lead Nut Snap Ring	351-24-54
13B	Lead Nut Nylatron Washers (2 required)	351-24-531

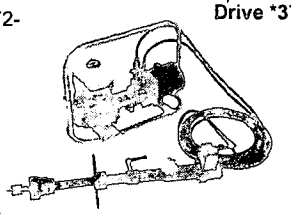
REF NO.	DESCRIPTION	ITEM NO.
14	Lead Tube Bushing Complete (includes Bushing, Shaft Seal,O-Ring)	351-22-2A
14A	Poly Pak Shaft Seal	351-57-2
14B	Lead Tube Bushing O-Ring	351-57-1-62
14C	Lead Tube Bushing	351-22-2
14D	Lead Tube Snap Ring (2 required)	351-23-54
15	Adapter O-Ring	351-05-571
16	Large Holesaw Arbor (includes Pilot Drill)	351-14-2
16A	Arbor Set Screw (included with Arbor)	351-51-2
17	Holesaw (see Holesaws page TM-13)	—
18	Arbor Pilot Drill (included with Small and Large Arbor)	351-01-402
Not Illustrated:		
	Toolbox	351-61
	Small Holesaw Arbor	351-14-1
	Spade Bit Holder	351-03-12
	3/4" Spade Bit	351-03-106
	1" Spade Bit	351-03-108
	Lead Tube Set Screw	351-23-512
Lead Nut Key		351-24-66
	Lead Set Screw	351-51-2
	Brake Pad (2 required)	351-30-1

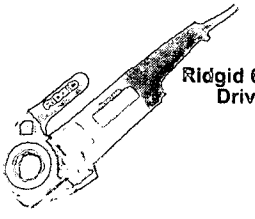
As an option, you choose how to power your TapMate Too...

Multi-Purpose Hydraulic Drive Base Unit *372-01
requires Hydraulic Drive Head Adapter 372-351-05



TapMate Too Hydraulic Drive *372-351





Ridgid 600 Electric Drive

*Considered Hazardous Material When Shipped by Air

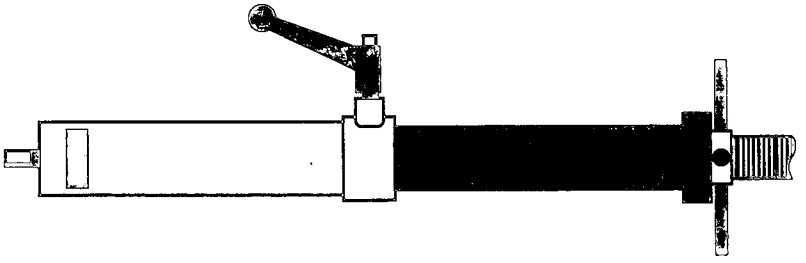
D. REMOVING THE MACHINE FROM THE MAIN

1. The cut is complete when the shaft advances easily into the main. Thread the Lead Nut back so that "0" shows on the ruler scale and then loosen the brake handle and pull the sliding brake tube and thrust tubes apart to full extension.

2. Close the corporation stop. If it will not close, check that the machine is fully retracted. The shaft of the drilling machine may still be interfering.

3. Unthread the machine from the corporation stop. The cut is complete.

E. CLEANING AND STORAGE:



Machine in the retracted position .. Lead Nut back to Zero on the scale.

1. The TapMate Too™ should be cleaned after each use. Clean the thread of the Lead Tube if necessary. Spray the Lead Tube with Tri Flow lubricant.

2. Examine the cutting tool, if it is dull then replace it before the next cut.

3. We advise the machine be stored in the tool box provided.

DRILLING PLASTIC PIPE:

The composition and construction of plastic pipe requires the use of additional tapping techniques. Unibell, the plastic pipe manufacturers association recommends a shell cutter with at least two flutes for tapping PVC pipe. For this reason, we advise you to use the PVC holesaws when tapping into plastic.

Tapping plastic pipe uses the same techniques as any other tap. However, the Unibell Handbook of PVC Pipe Design and Construction lists these additional precautions:

* When drilling or tapping any pressurized pipe, basic safety precautions are advised to assure personal safety to the workmen in the event of a sudden and unexpected pipe failure. Although such failures are extremely infrequent, nevertheless, the following precautions are recommended:

* A second workman or supervisor should be present in the immediate vicinity.

* In addition to normal protective clothing, goggles or face shields should be worn.

* Ladders should be provided for quick exit availability.

* A heavy protective blanket with a hole in the center to permit installation and operation of the tapping and drilling machine should be provided to cover the exposed area of the pipe.

Attachment 7: Slurry Line Inspection Schedule

American Energy Corporation
Century Mine
Slurry Line Inspections
Permit 06-06463

	Date:	Inspected		Reason not inspected or comments	Were Control Measures Required to be Implemented		Reason not Implemented or comments	Signature
Unit	Foreman:	yes	no		yes	no		
D-425	Slurry Line Inspection Daily							
	Along Twp. Rd. 74,& access road to SR 148							
	SR 148 to Casey Run Stream crossing							
D-425	Slurry Line Inspection Weekly							
	Casey Run Stream Crossing to discharge							

Attachment 8: Pond 19 Specifications

April 1989

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

CERTIFICATION 1

CERTIFICATION OF SEDIMENT CONTROL SYSTEM CONSTRUCTION

Permittee's Name AMERICAN ENERGY CORPORATION Permit D-0425

Complete both certification statements listed below.

A. I, the undersigned, a surveyor or engineer registered in the State of Ohio, hereby certify that the measurements of the constructed sediment control system described below conform to the measurements contained in the approved original/"as built"* (specify one) design plan.

STATE OF OHIO DONALD M. BRAFFORD E-29449 REGISTERED PROFESSIONAL ENGINEER SEAL

Signature | P.E. Title (engineer/surveyor) | 7-31-02 Date

B. I, the undersigned, an engineer registered in the State of Ohio, hereby certify that the sediment control system described below has been constructed per the approved original/"as built"* (specify one) design specifications and criteria and that:

1. the embankment foundation area was cleared of all organic matter and the entire foundation surface scarified;

2. the fill material was free of sod, large roots, other large vegetative matter, frozen soil, and coal processing waste; and

the fill was brought up in horizontal layers of such thickness as required to facilitate compaction in accordance with prudent construction standards.

STATE OF OHIO DONALD M. BRAFFORD E-29449 REGISTERED PROFESSIONAL ENGINEER SEAL

Signature | 7-31-02 Date

*NOTE: If "as built," then "as built" plan must be attached to this certification.

This sediment control system consists of:

Sediment ponds no. 019, _____, _____, _____,
Diversions (describe in relation to pond numbers).

Other control methods (describe if different from permit descriptions)

9-88

OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RECLAMATION

ATTACHMENT 20
(SEDIMENTATION POND/IMPOUNDMENT DATA SHEET)

D-0425
AS-BUILT

Applicant's Name AMERICAN ENERGY CORPORATION Pond # 019

Type of impoundment EXCAVATED Permanent _____ Temporary ✓

1. POND DRAINAGE AREA DATA:

a) Drainage area 4.0 acres
b) Disturbed area 4.0 acres
c) Ave. land slope 5 %
d) Hydrologic soil group B
e) Hydraulic length 685 ft.
f) Cover/condition of the undisturbed area N/A

2. DESIGN STORM CRITERIA:

a) Method:

1) Design method (s) including computer programs: SEDCAD 4.0

2) SCS curve number 88

b) Rainfall Amount/Peak Flow	Rainfall, in.	Peak flow, cfs.
1) 10 year, 24 hour =	3.7	9.6
2) 25 year, 24 hour =	4.3	11.5
3) 50 year, 6 hour = (if permanent)		
4) 100 year, 6 hour = (if 20/20 size)		

3. POND SIZE:

a) Dimensions:

1) Dam height 3.7 ft.
2) Dam width 10 ft.(MIN)
3) Dam length 385 ft.
4) Dam downstream slope 50 % (MAX)
5) Dam upstream slope 30 % (MAX)
6) Core length 385 ft. 10 ft. 4 ft.

b) Sediment storage volume 0.98 ac. ft. is provided below the 848.3 foot elevation.

c) Stage/Area Data:	Elevation ft.	Surface Area ac.	Volume ac.ft.
1) Bottom of pond	843.0	0	0
2) Streambed at upstream toe:	846.0	0.21	0.42
3) Principal spillway inlet:	N/A	N/A	N/A
4) Emergency Spillway Crest:	848.3	0.28	0.98
5) Top of embankment:	849.7	0.35	1.36

4. PRINCIPAL SPILLWAY: N/A

a) Pipe length _____ ft.
b) Pipe diameter _____ in.
c) Pipe slope _____ %
d) Riser diameter _____ in.
e) Riser height _____ ft.
f) Type of pipe _____
g) Number of anti-seep collars _____; spacing along pipe _____ ft.
h) Does the design include a trash rack? _____ Yes, _____ No.
i) Does the design include an anti-vortex device? _____ Yes, _____ No.

5. EMERGENCY SPILLWAY/EXIT CHANNEL:

a) Base width 13 ft.
b) Design flow depth 0.2 ft. Depth in level section 0.4 ft.
c) Exit slope 28 %
d) Exit velocity 4.5 fps
e) Channel lining ROCK RIPRAP
f) Side slopes 2:1
g) Freeboard 1.0 ft.
h) Entrance slope 50 %
i) Length of level section 11 ft.

6. The minimum static factor of safety for this impoundment is 1.5

7. Provide as an addendum to this attachment a detailed plan view or 2 cross sections of the impoundment.

8. COMMENTS:

9. Is this an MSHA structure? _____Yes, ✓ No. If "yes," provide the MSHA ID. number if one has been assigned _____.

10. If this is to be retained as a permanent impoundment, submit an addendum to this attachment demonstrating compliance with rule 1501:13-9-04(H) (2) of the Administrative Code.

11. I hereby certify that this impoundment is designed to comply with the applicable requirements of rule 1501:13-9-04 of the Administrative Code using current, prudent engineering practices.

Signature

7-31-02
Date

STATE OF OHIO
DONALD M. BRAEFORD
E-29449
P.E. SEAL
REGISTERED
PROFESSIONAL ENGINEER